A STUDY OF THE CONSTRUCT VALIDITY OF SELF CONCEPT MEASURES

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I. INTRODUCTION

The hypothetical construct, self concept, has frequently been utilized by self theorists to explain behavior of the individual. A person's behavior is thought to be in large part determined by the perceptions the individual has about himself. Although the self concept has been regarded as a useful construct to understanding behavior, serious questions have been raised as to how it can be validly measured. Combs (1962) and Combs, Soper and Courson (1963) have criticized most attempts of researchers to measure the self concept for measuring self report rather than self concept. Wylie (1961), Strong, and Feder (1961), and Crowne and Stephens (1961) have recognized such validity problems as differences in operational definitions, effects of response sets, effects of social desirability, differences in selection procedures of test items, and poor reliability and validity data about self concept instruments.

A major source of confusion in self concept research is the indiscriminant use of different semantic labels to describe aspects of the self concept. Labels for self concept measures have often been used interchangably and regarded as representing equivalent constructs solely on the basis of face validity of the measuring instruments. This has been done even when the constructs involved are based upon what Underwood (1957) distinguishes as literary and operational definitions that are widely different.

The desire to measure the self concept has produced a proliferation of different instruments, many of which are used only once or twice. Such a development has often only added to the existing confusion in self concept research. Besides differences in item selection and test methodology, self concept instruments usually are not related to other instruments purported to measure the same or similar constructs. Interpretation of self concept measures are often confounded by the lack of such psychometric data as reliability, validity, and norms. The suspect nature of most self concept measures has not, however, deterred researchers from generalizing from the results of one instrument to that of another. It appears that more scrutiny to what is being measured is warranted than is commonly exercised.

The question of what self concept instruments measure calls attention to a generally neglected area of investigation. Meaningful interpretations of test scores necessitate validity studies be conducted to establish to what extent instruments measure what they are said to measure. Too frequently instruments are assumed to measure what they appear to measure. This face validity is a subjective process in which the test constructer selects test items he believes represent the construct he wishes to measure. The result of this type of validity has been an accumulation of inadequate knowledge as to what extent instruments are measuring the same or different construct. To assume on faith that a test measures what it looks like it measures is scientifically naive. Serious researchers should not be content with face validity as the sole means of validating their instruments.

A serious problem in self concept research has been the lack of agreement of operations as to the definition of self concept. Consequently, the same construct label has been utilized for different operations. Bohrnstedt (1970) states that "when this occurs, generalizations involving the construct are impossible to make since there really is no single construct under investigation . . ." One approach to clarifying the nature of a theoretical construct assumed to be measured by a test is to use the concept of construct validity described by Cronbach and Meehl (1955).

As defined in Standards for Educational and Psychological Tests and Manuals published by the American Psychological Association (1966):

> . . . construct validity is evaluated by investigating what qualities a test measures, that is by determining the degree to which certain explanatory concepts or constructs account for performance of the test.

Construct validation is important whenever a researcher has no external criterion to which he can compare the test results that he obtains (Cronbach and Meehl, 1955). The construct thought to underlie the test rather than the actual test behavior is of primary importance. In terms of self concept measurement, it is not the actual test scores that are of interest but the self concept inferred from those scores. The phenomological nature of the self concept prevents validation by a single external criterion.

This study is concerned with relating different self concept measures based upon different and similar operations to establish construct validity of instruments believed to measure self concept.

Cronbach and Meehl (1955) have described a number of procedures for investigating construct validity, several of which will be utilized in this study.

Three methods of testing construct validity, group mean differences, correlation, and factor analysis will serve to establish the construct validity of self concept measures. Testing for group mean differences involves testing for differences in mean scores of groups who theoretically should obtain differential scores on a test. Two other validation methods are correlation and factor analysis of scores. Measures of the same construct should intercorrelate highly and a factor analysis should establish whether or not a construct exists and to what extent each test measures it. Primary emphasis will be given to the factor analysis of self concept measures.

Since most self concept instruments have not been constructed with the aid of factor analysis, they may be multidimensional and measuring more than one factor. Scores produced from such tests are ambiguous and difficult to interpret (Guilford, 1954). With more than one factor forming a single score we never know to what extent each factor affects the score.

Factor analysis empirically establishes whether or not a hypothetical construct, such as self concept, exists and to what extent a test measures it. Factor analysis of a group of test scores can serve two functions: 1) determine the most parsimonious number of factors which can account for the observed intercorrelations of tests, and 2) the extent to which each test measures each factor (Helmstadter, 1964).

Factor analysis of test items is helpful in constructing a more univocal instrument. Those items which have the highest factor loadings on the factor which one wishes to measure can be found and retained in a more homogenous instrument (Bohrnstedt, 1970).

Factor analytic studies have been conducted to discover an empirical basis for the construct of self concept. These have not been without some methodological weaknesses and limitations. For example, Vincent (1966, 1968) in her study of self concept labels used seven test scores, two of which shared common items; thus producing spuriously high correlation coefficients between those two scores (Self Satisfaction and Personal Self). The factor analyses of both Vincent (1966, 1968) and Strong (1962) were performed on test data obtained from college undergraduate students. As Peak (1953) has suggested, the factors and factor loadings obtained from one sample could be different in another population having different characteristics. Generalizations based upon factor analytic studies using college students as subjects may not be valid or representative of other populations.

Although some correlation studies of self concept instruments have been conducted, few attempts have been made to factor analyze a number of such instruments to validate them. Studies that have been done cannot necessarily be generalized to populations other than the ones used in the studies. Construct validation of self concept measures should, besides validating the construct of self concept, also clarify the type of population for which the different self concept measures can be validly applied. This issue of validity of measures for different

populations will be a major area of study in the present investigation. The results from this study will provide information important to the better understanding and interpretation of self concept measures.

For the purposes of this study self concept is defined as a generic term describing all of the feelings and beliefs an individual may have about himself. Discussion of self concept terms such as self acceptance and perceived self will be reserved for Chapter II.

II. LITERATURE REVIEW

Self Concept Theory

William James (1890) is considered one of the early conceptualizers of the self and is credited to having introduced the concept of self into American psychology (Brownfain, 1952; Fitts and Richard, 1971). James conceptualized the self as the sum total of all that a person regarded as "I", the knower, and "Me", the self that is known.

Both Cooley (1902) and Mead (1925) are considered having made major contributions to self theory by emphasizing that one's self concept is a product of social interaction (Gordon and Gergen, 1968). How an individual is treated by significant others in his environment affects how he regards himself. He comes to regard himself as he perceives others regard him.

Carl Rogers is probably the most significant figure in self concept theory with much of the self concept research deriving from his self theory. Rogers (1951b) considers the self concept or self structure ". . . as an organized configuration of perceptions of the self which are admissible to awareness." An individual's behavior is thought to be consistent with his self concept. The self concept is viewed as a means of satisfying the needs of the organism and meeting the demands of life (Rogers, 1951a). The self concept provides a person with a frame of reference for his behavior and determines what perceptions are allowed into his awareness. Regarding self evaluation Rogers (1950) says:

> A positive emotional tone toward the self seems to exist when the self structure is firmly organized, and a negative feeling about the self exists when the organization of self is threatened by experiences which are vaguely or clearly seen as inconsistent with that structure.

There seems to be general agreement in self concept literature that the self concept is learned, is dynamic and reflects the internalizations of perceived experiences of the self with others. Man's behavior is always meaningful in terms of his own perceptions.

Self Concept Terms

There are numerous terms or labels describing the self concept or aspects of the self concept which are not clearly differentiated by literary or operational definitions. Examples of terms commonly describing all or major aspects of a person's beliefs and attitudes about himself are self concept, self, ego, self structure, and self image.

Wylie (1961) and Ossorio and Davis (1968) use self concept to refer to the beliefs or perceptions which a person believes describes him. Strong and Feder (1961) and Brownfain (1952) appear to define self concept as a self evaluative dimension. Perkins (1957) and Jersild (1965) include in their definitions of self concept the attitudes and beliefs an individual has about himself as well as other things such as what one has been, personal fears and fantasies. The differences in literary definitions as well as the use of divergent operational definitions has resulted in confusion what self concept is.

Wylie (1961) has proposed that self regard is a self evaluative measure and a generic term including other labels such as self esteem,

self acceptance, self satisfaction, self favorability, self-ideal discrepancy, and self-ideal congruence. Without empirical knowledge of what operations these terms describe, such a practice has poor validity and adds to the existing confusion. There is no assurance that the different labels refer to the same construct.

There seems to be almost complete agreement on the labeling of one aspect of the self concept, ideal or ideal self. The ideal or ideal self refers to the kind of person one would like to be. The primary use of the ideal self has been in calculating self-ideal discrepancy or congruence scores (e.g., Bills et al., 1951; Butler and Haigh, 1954).

The term phenomenal self is defined by Snygg and Combs (1949) and Combs and Soper (1957) as all of the perceptions a person has about himself without regard to the importance or awareness of them to him at any specific time. Wylie (1961) uses phenomenal self to refer to the "conscious self concept." Combs (1962) clarifies the definition by saying that the perceptions of the phenomenal self vary as to their level of awareness. Just as the phenomenal self is a subset of a person's phenomenal field, the phenomenal self has, according to Combs and Soper (1957) a subset called the self concept. They define this self concept as ". . . only those aspects which are important or vital to the self."

Self concept definitions may include terms differentiating between the beliefs a person has about himself and the evaluations of himself. The aspect of the self concept defining what a person believes about himself has been known by such terms as self concept, self, and perceived self. The evaluations a person has about those beliefs have been

called by a wide variety of names such as self esteem, self regard, and self acceptance.

The label self acceptance has been one of the most frequently used in self concept research. Most often self acceptance has been operationally defined as the correlation between perceived self ratings and ideal self ratings (Crowne and Stephens, 1961). As used by Rogers (1951) and Combs and Snygg (1959), self acceptance is a nonevaluative description of an individual comparing how he thinks he is to how he would like to be. Combs and Soper (1957) state that self acceptance ". . . is related to the accuracy of observations and self awareness, and does not imply approval or disapproval of self." Other uses of the term equate it with an evaluative assessment of self description (e.g., Bills, et al., 1951; Cohen, 1959). Self-ideal correlations called measures of self acceptance are commonly interpreted as indices of personal or "within-self" adjustment (e.g., Cartwright and Roth,1957).

Much of the self concept research conducted since the 1950's has involved self-ideal discrepancy or self-ideal congruency measures. The assumption has been that the higher a person's correlation or the less the difference between his perceived self and ideal self ratings the more "adjusted" he is. This assumption has been criticized because of possible poor validity of such self reports (Combs and Snygg, 1959; Jersild, 1965; Levy, 1970), and because observed discrepancies between self and ideal ratings may not be perceived as discrepancies by the individuals rating themselves (Combs and Soper, 1957).

Self Concept and Therapy

Since the early 1950's psychotherapy research has been conducted supporting Rogers' (1951) postulated positive relationship between positive changes in the self concept and improvement in psychotherapy (e.g., Butler and Haigh, 1954; Cartwright, 1958; Rogers and Dymond, 1954). As the self concept changes the individual's behavior is expected to change so that the self concept will be consistent with behavior (Rogers, 1950). Although some positive self concept changes have been reported without therapy (e.g. Engel, 1959; Dymond, 1955; Taylor, 1955), there appears to be a positive correlation between improvement in therapy and positive self concept changes. Wylie (1961) warns, however, that improved self concept may not be related to all improvement criteria.

Self Concept and Academic Achievement

If academic underachievement is regarded as a form of maladjustment, underachievers theoretically should have lower self concepts than achievers. There is evidence to support such a postulation (e.g., Turner and Vanderlippe, 1958; Bailey, 1971; Borislow, 1962). Boyko's (1970) admirable but unsuccessful attempt to positively change the self concept of elementary school children is an example of applying self theory to academic settings.

Self Concept and Adjustment

Theoretically self concept should be closely related to adjustment. People with positive self concepts would be expected to be the most adjusted and those with negative self concepts the most maladjusted.

Research studies relating self concept measures with adjustment or maladjustment have produced conflicting results, however.

A number of investigators report significant positive relationships between adjustment of psychiatric patients and positive self concept measures (e.g., Chase, 1957; Miskimins, Braught, Wilson and Berry, 1971; Tamkin, 1957, Wagner and Fitts, 1969).

Calvin and Holtzman (1953) had college students rate themselves on seven personality attributes and found self enhancement inversely related to maladjustment as measured by the MMPI. Engel (1959) found positive self concept was positively related to measures of adjustment (MMPI) with a group of adolescents. Hanlon, Hofstaetter, and O'Conner (1954) compared the performance of high school students on the California Test of Personality and self-ideal discrepancy scores and found greater self-ideal congruence positively related to adjustment. Smith (1958), Turner and Vanderlippe (1958), Zuckerman and Monashkin (1957) using different self concept measures and adjustment criteria found that college students with less self-ideal discrepancy to be more adjusted.

Alcoholics have been reported as having more negative self concepts than non-alcoholics (Gross and Alder, 1970; Vanderpool, 1969). Fitts and Hamner (1969), after reviewing the literature of self concept studies of juvenile delinquents as measured by the Tennessee Self Concept Scale, concluded that juvenile delinquents characteristically have negative self concepts as compared to non-delinquents.

Fielder, Dodge, Jones, and Hutchins (1958) found no significant relationship between the self concept of college students and such criteria as grade point average, army adjustment and the Taylor Manifest

Anxiety Scale. Taylor and Combs (1952) found children with better adjustment scores on the California Test of Personality, to more often admit to statements which were "probably true" of all children yet uncomplementary if admitted. Taylor and Combs interpreted this finding as a positive result in that it indicated that better adjusted children were more realistic in admitting less flattering facts about themselves than less adjusted children.

Dietz (1970) found adolescent delinquents had more positive self concepts than non-delinquent adolescents. He interpreted this result as possible evidence that his delinquent group denied their negative self perceptions and that non-delinquents ". . . falsified the positiveness of their self attitudes."

Using the Worchel Self-Activity Inventory to measure self concept, Hillson and Worchel (1957) studied college students, neurotics and schizophrenics. They found no significant differences between the self-ideal discrepancies of normals and schizophrenics but did find that schizophrenics had significantly lower ideal self scores than either normals or neurotics. As compared to normals and schizophrenics, neurotics had significantly poorer self-ideal discrepancy scores.

Zuckerman, Baer, and Monashkin (1956) found no relationship between self-ideal discrepancy scores of male psychiatric patients and adjustment as judged by final case sumaries. They did, however, report a significant negative ($r = -.35$) relationship for female psychiatric patients. Improvement in the hospital was positively correlated for self-ideal discrepancy scores for all patients.

The contradictory results from self concept and adjustment research may not be as confusing as they initially may appear if one considers the studies differ in several respects. Differing adjustment criteria, self concept measures and subjects are used. It appears that one cannot simply generalize that the greater the self-ideal discrepancy or the more negative the self concept the greater the maladjustment of the individual.

Manasse (1965) attempted to investigate the conflicting results by hypothesizing that for psychiatric patients differences may in part be due to the effects of differences in environmental expectations. He found evidence to support this hypothesis and contended that a psychiatric hospital has fewer demands than the outside community, allowing patients to create illusions of doing well whereas out-patients are more likely to be confronted with their inadequacies.

One explanation for the failure to find positive results between positive self concept measures and adjustment is that people who are considered maladjusted ". . . may be maladjusted but are defensive or lack insight into their condition" (Zuckerman and Monashkin, 1957). Very positive self concept measures may reflect overcontrolling and denial. This explanation does not help in establishing the validity of a self concept construct in that it does not allow directional predictions to be made.

Measurement Problems

Operational Definitions

For a construct to be meaningful there must be some way to directly

or indirectly measure it (Levy, 1970). Literary definitions must be put into a set of operations by which it can be measured. As Wylie (1961) has shown, many different operational definitions of self concept have been utilized. Often the ambiguity of literary definitions hindered transformation into operational definitions. Without empirically demonstrating the equivalence of different operational definitions, valid generalizations of results from one to another are not possible. This has not deterred frequent comparisons of the results from one operation to that of another because they have been given the same or similar label.

After reviewing "self acceptance" research literature, Crowne and Stephens (1961) concluded that there ". . . has been few if any definitions of the construct which are not either rigidly operational or highly abstract." This criticism is appropriate for most of self concept measurement.

Accuracy of Self Reports

The accuracy of self reports cannot readily be accepted on face validity since that implies the assumption that self reports are equivalent to an individual's self concept. As Combs and Soper (1957) and Combs, Soper, and Courson (1963) emphasize, self report is a behavior and self concept an inference made from that behavior. Considerable attention has been given to the factors or variables that may affect self report behavior and thus affect the accuracy of an inferred self concept (e.g., Combs and Snygg, 1959; Gordon, 1968; Holt, 1951; Jersild, 1965; Wylie, 1961).

The following is a list of some of the variables which have been recognized as possibly affecting the accuracy of a person's self report: 1) awareness of his beliefs and attitudes about himself, 2) what he is willing to admit about himself, 3) what he believes he must deny, 4) approval motivation of the person, 5) perceived demand characteristics of the situation, 6) response set, 7) content areas of test items, 8) vocabulary of test items, 9) social desirability of test items, 10) form of the instrument, 11) method of rating or responding to test items, 12) the degree of freedom allowed in responses, 13) the number of responses made, 14) effects of being requested to make a self report, 15) lack of experimenter-subject rapport, 16) wording of directions.

The major problem in self concept research is that there is no way of independently checking an individual's self report to assess how accurately he has reported his self perceptions.

Item Content

The items on a self concept instrument may affect how a person responds to them in a number of ways. The wording of the item, and the level of vocabulary used could result in individual variance in the semantic interpretation of the items. Wylie (1961) indicates that people may be more likely to reveal some perceptions of themselves more than others. Some perceptions may be central and others peripheral to a person's self concept, with the more peripheral being more readily revealed.

Some test items are vague as to the frequency of which an attribute may be characteristic of an individual. This means that the individual must define for himself the frequency of items. A problem in allowing

this to occur is that what is considered frequent may vary from person to person. In most cases test items lack specific situational referrants to which an item or characteristic refers. Again this allows the subject to define for himself to which situation or situations an item is applied. The self concept instrument developed by Fitts (1965) in which self scores are reported for family, social self and personal self appears to be an attempt to remedy this weakness in self concept assessment.

Item Selection

Ideally a test should contain test items that are representative of a population of items representing the construct that has been defined. This is not usually attained in self concept test construction, partly because of lack of agreement upon a common universe of self concept items. Procedures for test item selection have varied considerably, with a variety of criteria being used. The unfortunate consequence has been the use of different items, selected by different methods, assumed on the basis of face validity to be measuring the same or similar construct.

Self concept test items usually do not represent a random sample of items from a relatively homogenous universe of items. Butler and Haigh (1954) for example developed a Q-sort instrument by selecting statements from client centered therapy protocols. Bills, Vance, and McLean (1951) developed the Index of Adjustment and Values by selecting adjectives frequently appearing in client centered interviews and items from Allport and Odbert's (1936) list of 17,953 trait names. Frequently test constructors do not provide adequate information about the procedures used in selecting test items.

A result of using different selection procedures is the uncertainty of what dimensions are measured and to what degree for different tests. Some test items may be more representative of a descriptive or belief dimension whereas others of an evaluative dimension and all aspects of self concept may not be equally represented.

Item Balancing

Another problem of self concept instruments is the failure to balance positively and negatively worded items, allowing for the effects of acquiescence and negative response sets. Cowen and Tongas (1959) for example have criticized Bills' Index of Adjustment and Values because forty of the forty-nine adjectives were found to be considered positive items.

Social Desirability

Some evidence indicates a significant relationship between endorsement of self descriptive words and social desirability of those words (i.e., Cowen and Tongas, 1959; Kenny, 1956; Loehlin, 1961). The more a description is considered socially desirable the more often subjects describe their perceived self and ideal self by that description. This raises some question as to whether self concept is being measured by self concept instruments or a social desirability variable. Are individuals reporting themselves as they perceive themselves or in terms of characteristics that they have learned are culturally desirable? This problem of social desirability may be relevant to studies which have validated self concept measures against objective personality tests. Significant relationships may be in part accounted for by the social

desirability of the items on both tests rather than the variable in question. Lowe (1961) warns that studies by Edwards (1957) ". . . suggest that extreme care must be taken in the labeling of constructs" because of this possibility.

Instruments

Measurement of the self concept has been characterized by development of a wide range of instruments to assess different aspects of the self concept. Test constructers often supply inadequate test descriptions and reliability and validity data. Few studies have been conducted establishing empirical relationships between measures purporting to measure the same construct. Few instruments have been internally factor analyzed in their construction.

The most commonly used self concept instruments can be grouped into three major categories: Q-sorts, free response measures, and Likert-type questionnaires and adjective check lists. A brief description of each category along with some of the limitations of each follows.

Q-sorts

The Q-technique developed by Stephenson (1953) was first applied to self concept measurement by Butler and Haigh (1954). A self concept Q-sort usually consists of a large number of personality descriptive terms which the respondent places into a series of piles along a continuum ranging from most to least like himself. Each pile must have a specific number so that the piles are forced to form an approximately normal distribution of items. The individual generally is requested

to sort the statements to describe himself as he sees himself (a self sort) and as how he would like to be (an ideal sort). These self and ideal ratings are correlated to produce a self-ideal correlation usually interpreted as an index of a person's self acceptance (self evaluation).

Self-ideal measures have been criticized for a number of reasons. Guilford (1954) remarks that the possible halo effect from rating the same test two or more ways may produce spuriously intercorrelated variables. (This weakness is also apparent in questionnaires or check lists that are rated in more than one way.)

At least one study (i.e., Jones, 1956) has shown that Q sorting in a free choice situation (any number of items allowed for each pile) can produce a U-shaped distribution rather than a normal one. Shlien and Zimring (1970) indicate that Q-sorts have different instructions as well as widely varying statements.

Strong and Feder (1961) draw attention to the time consuming nature of Q-sorts as compared to other self concept instruments. They also indicate that "individuals may be grouped according to similarity in profiles but may be entirely different in personality structure." Another limitation is that self-ideal correlations do not allow any comparison of interindividual mean differences in self and ideal ratings.

Likert-Type Questionnaires and Check Lists

Likert-type questionnaires and check lists consist of statements or personality traits which are rated by an individual in terms of applicability to himself on a five point scale. Individual item responses are given numerical weights and a total test score derived by

adding all of these item weights. Check lists usually consist of a list of adjectives and are rated in several different ways. Questionnaires typically contain declarative sentences and more often than check lists are rated only once.

The utility of total or summated scores has been questioned on much the same basis as self-ideal correlations. Total test scores obscure the value of individual test item responses (Peak, 1953; Combs and Snygg, 1959). A single score does not reflect any underlying organization that would perhaps more accurately represent an individual's perceptions of himself. This last limitation has been met by the construction of questionnaires reported in subscores, which may more accurately index an individual's self perceptions than a total score.

Free Response Measures

Free response measures include self concept techniques which allow, to varying degrees, an individual to describe himself in his own words. Projective tests such as the TAT and Rorschach are perhaps the least structured with the individual being stimulated by ambiguous visual pictures. More structured free response measures may include a single question such as, "Who are you?" or, "Who am I?" (e.g., Bugenthal and Zelen, 1950; Gordon, 1968; Kuhn, 1960). Scoring such instruments are to some extent dependent upon the subjective evaluation of the test responses. Responses obtained may be coded into various categories and configurations of such categories made and compared with different groups.

Because of the subjective nature of the scoring of free response

measures, quantification and objective scoring of test responses is a problem. Classification of responses into preselected categories is frequently difficult (Strong and Feder, 1961).

Validity Studies of Self Concept Measures

Correlational Studies

The previously discussed relationships between adjustment and therapy change with self concept measures can be regarded as attempts to obtain construct validity for self concept instruments. Another method of validating self concept measures is to correlate instruments which are believed to measure the same or similar constructs. As Wylie (1961) and Strong and Feder (1961) have observed, few studies of this nature have been undertaken. Of those which have, the obtained results do not always support the validity of the instruments in question.

Omwake (1954) found significant correlations between the Self-Acceptance and Acceptance of Others Scale by Berger, the questionnaire on Attitudes Toward the Self and Others by Phillips, and the Bills Index of Adjustment and Values. The Self Acceptance scores from the three instruments were correlated to produce the following correlations:

Berger vs. Phillips +.73

Bills vs. Berger +.43

Phillips vs. Bills +.55

These correlations support the validity of the scores for measuring the same construct. One explanation for the higher correlation between the Berger and Phillips Self Acceptance scales may be common method variance since those two instruments are of the same format.

Cowen (1954) found a positive correlation between Self-Ideal discrepancy scores of the Bills Index of Adjustment and Values (IAV) and the negative self concept score of Brownfain's Self-Rating Inventory. In a later study Cowen (1956) compared the different IAV and Brownfain scale scores and found little relationship between them.

Wylie (1961) refers to Bills unpublihsed IAV manual in reporting a positive correlation (r = +.24) between "Acceptance of Self" of the IAV and the Self Acceptance score of the Phillips Questionnaire. It is not clear whether Wylie is referring to the Self Acceptance score or the Self-Ideal discrepancy score of the IAV. The positive correlation is consistent, although smaller, than that reported by Omwake (1954) for the Self Acceptance scores for both instruments.

Winkler and Meyers (1963) report a correlation of +.57 between the Self-Ideal discrepancy scores of the IAV and the Butler-Haigh Q-sort. It is probably significant that both instruments were more highly correlated with the Taylor Manifest Anxiety Scale than with each other.

Crowne, Stephens and Kelly (1961) intercorrelated four "self acceptance" tests (Self Acceptance questionnaire, Bills Index of Adjustment and Values, Buss Scale, and the Goughe Adjective Check List) and measures of adjustment (Incomplete Sentence Blank by Rotter and Rafferty, 1950) and social desirability (Social Desirability Scale by Edwards, 1957). They found self-ideal discrepancy scores of the Self Acceptance questionnaire, IAV and Buss Scale were positively and significantly intercorrelated for both male and female college students. Correlations ranged from +.40 to +.65.

The self acceptance scores from the IAV and Adjective Check List were correlated for males (+.48, $p < .01$) and females (+.31, p = N.S.).

Social desirability scores and self-ideal discrepancy scores were significantly and negatively correlated and positively correlated for self acceptance scores.

Factor Analytic Studies

Two of the more important studies of the construct validity of self concept measures are the factor analytic research of Vincent (1966, 1968) and Strong (1962).

Vincent (1966, 1968) conducted a factor analysis of seven scores from four self report instruments to investigate the construct validity of measures with similar or identical labels and were thought to reflect similar dimensions of the self concept. She found that two of the subscales from the California Personality Inventory, Self Acceptance and Self Control, were poorly correlated with the other five subscales from the other instruments. The other subscales, Self Satisfaction and Personal Self (Tennessee Self Concept Scale), Security (Security-Insecurity Inventory), Confident Adequacy and Emotional Stability (Sixteen Personality Factor Questionnaire), were all significantly positively correlated. Factor analysis of the test intercorrelations yielded a major common factor for five of the subscales and a second factor of the two CPI scales (Self Acceptance and Self Control).

Strong (1962) in an earlier factor analytic study of self concept measures (Butler-Haigh Q-sort, Bills IAV, and the Worchel Self-Activity Inventory [SAI]) attempted to determine the relationship of social desirability and self concept measures.

The intercorrelations of the various scores (ideal, perceived self, self-ideal discrepancy, self acceptance) and social desirability scores for the instruments were rather low but still significant. Examination of the intercorrelations suggests that the self concept instruments may not be measuring the same variables to the same extent. For instance, Ideal Self on the IVA is correlated only +.15 with the Ideal Self of the Butler-Haigh Q-sort. The Self-Ideal discrepancy scores of all three instruments intercorrelated near +.60 and were the highest related scores across instruments.

Four factors were extracted by factor analysis. One common factor for all three instruments was found and this had its highest loadings on the three IAV scores and the Perceived Self scores on the other two instruments. Two of the other three factors were specific to the Butler-Haigh Q-sort and the SAI. The fourth factor had high loadings on Ideal Self of the IAV and SAI Ideal Self and social desirability of those same two instruments. Strong (1962) concluded that the perceived self was the only variable measured in common by the three instruments.

III. METHODS AND PROCEDURES

Subjects and Administration

Two different groups of subjects were used in conducting this study. One group was composed of 83 college undergraduates living in university dormitories at the University of Illinois. They ranged in age from 18 to 20 years. The second group of subjects consisted of 39 male psychiatric patients hospitalized at the Danville Veterans' Administration Hospital and diagnosed as being schizophrenic. The patients were all under 45 years of age and ranged between 25 and 45 years. Each had a minimum eighth grade education and were well enough in contact with reality to fill out the instruments. The final number of 39 represents only subjects who completed all eight instruments. Nine other patients failed to finish filling out all instruments and their results were rejected for analysis.

Test instructions for both groups were similar. They included an explanation that the purpose of the study was to learn how they (the subjects) felt and thought about themselves. It was emphasized that each subject should be as honest as he could in answering all test items and was not to be influenced by what he believed others thought of him. Anonymity was assured by not having subjects indicate their names on the test instruments. For the patient group it was explained that the individual results of each subject would not be used in any way at the hospital.

Administration for the students was conducted in one group session. In the case of the patient subjects, testing was conducted in relatively small groups (5-8 people) and they often were given tests in two sessions on the same day. Following completion of all tests each subject was paid for participating in the study.

Instruments

Four separate paper and pencil instruments assumed to measure the self concept or aspects of the self concept and a short one-sentence self rating scale were administered to both groups of subjects. The major criteria for selection of the instruments were that they have been frequently used as measures of self concept, are relatively easy to administer and are objectively scored. Test order effects were controlled by randomly arranging the order of the instruments for each subject. The instructions for filling out the instruments were the same for both groups.

The instruments administered consisted of two complete tests, three subscales of larger instruments, and the one sentence self-rating. The complete Tennessee Self Concept Scale (TSCS) and the Personal Orientation Inventory (POI) were administered, but only the Identity and Self Satisfaction subscales of the Tennessee Self Concept Scale, and the Self Regard and Self Acceptance subscales of the Personal Orientation Inventory were scored and analyzed. Test items from the Self Acceptance subscale of the California Personality Inventory (CPI) along with 26 randomly selected additional CPI items, and the Self Acceptance and Self forms of the Index of Adjustment and Values (IAV) were administered and scored.

Tennessee Self Concept Scale

The TSCS, developed by William Fitts, is described as a multi-dimensional measure of the self concept (Fitts, 1965). It is composed of 100 self descriptive items which are responded to on a Likert-type five point scale from "completely false" to "completely true." Two forms of scoring, a Counseling Form and a Clinical and Research Form are available. The Clinical and Research Form used in this study is reported in twenty-nine dependent and independent scores. Two of the independent scores, Identity and Self Satisfaction, are of importance to this study. Fitts (1965) describes the Identity score as representing for an individual "what he is as he sees himself." The Self Satisfaction score represents ". . . those items where the individual describes how he feels about the self he perceives."

Criterion-oriented validation studies of the TSCS support the validity of the instrument. Fitts (1965) and Fitts and Hamner (1969) report significant discrimination between such groups as psychiatric patients and non-psychiatric patients, delinquests and non-delinquents, as well as differentiating the type and degree of psychiatric disturbance.

Reliability data about the TSCS are limited. Fitts (1965) found test-retest reliability coefficients of +.91 and +.88 for Identity and Self Satisfaction scores of college students after a two-week period.

A high (+.80) correlation between Self Satisfaction and Identity scores for psychiatric patients reported by Fitts (1965) suggests a possible lack of independence in these two scores.

An item factor analysis of the TSCS by Vacchiano and Strauss (1968) found factors corresponding closely to the TSCS scales of Physical Self, Family Self, Social Self, Moral-Ethical Self, and Personal Self. Failure to find factors corresponding to the TSCS Identity, Self Satisfaction, and Behavior scales was considered to be due to the use of college students as subjects rather than invalidity of those scores.

The significance of a factor analytic study of TSCS scores by Rentz and White (1967) is unclear because the intercorrelating of dependent scores violates an important assumption of factor analysis. Results from their study did suggest that one major factor was being measured by the TSCS.

Personal Orientation Inventory

The POI was constructed by Everett L. Shostrum to meet ". . . the need for a comprehensive measure of values and behavior seen to be important in the development of self actualization (Shostrum, 1968)." This instrument has 150 pairs of items to which the respondent indicates the item in each pair he believes is true of him. Since each pair of items is essentially stated in opposite directions, the answering procedure is much like a true-false test. Scores are reported in two scales and ten subscales. The basic scales are labeled Time Ratio and Support Ratio. The other ten subscales, each measuring ". . . a conceptually important element in self actualization," are Self-Actualizing Value, Existentiality, Feeling Reactivity, Spontaneity, Self Regard, Self Acceptance, Nature of Man, Synergy, Acceptance of Aggression, and Capacity for Intimate Contact.

Two subscales, Self Regard and Self Acceptance, were used as self concept measures in this study. Shostrum (1968) defines Self Regard as ". . . affirmation of self because of worth or strength," and Self Acceptance as measuring ". . . affirmation or acceptance of self in spite of weaknesses or deficiencies."

Both Self Acceptance and Self Regard scales have been shown to discriminate between "relatively self actualized" adults and "relatively non-self actualized" adults (Shostrum, 1968). Shostrum (1968) refers to a report by Fox (1965) which found that all POI scales significantly ($p < .001$) differentiated normals and a group of hospitalized psychiatric patients.

Klavetter and Mogar (1967) found test-retest reliability coefficients of +.71 for Self Regard and +.77 for Self Acceptance using college undergraduate students as subjects. They also reported a correlation of +.23 between Self Acceptance and Self Regard.

Index of Adjustment and Values

The IAV was developed by Bills, Vance and McLean (1951) to obtain measures of a person's perceived self, his ideal self, a self acceptance score, and a measure of adjustment as assesssed by a self-ideal discrepancy score. This instrument contains 49 descriptive adjectives to which the subject is requested to respond to in three different ways along a five point scale. The individual rates the adjectives as he perceives himself to be (Perceived Self), how he evaluates each description of himself (Self Acceptance), and how he would like to be (Ideal Self). The primary purpose of the IAV is to measure self acceptance (Bills,

1959). For this study the Self Acceptance and Perceived Self scores were used.

The validity of the IAV has been established by the use of the Rorschach test (Bills, 1953), a free association test (Roberts, 1952), correlation with other instruments also purported to measure self acceptance (Omwake, 1954), and correlations between Self Acceptance scores and ratings of judges (Bills, 1954).

Wylie (1961) reports some of the reliability data that Bills included in his unpublished manual for the IAV. Split-half reliabilities of +.53 for Self scores and +.87 for Self-Idean discrepancy scores are reported. Test-retest reliability coefficients of +.83 for Self Acceptance and +.90 for Self scores were found after a six-week interval. Bills et al.(1951) report a split-half reliability of +.91 for Self Acceptance scores.

California Psychological Inventory

This instrument was designed by Harrison G. Gough as a personality assessment device for use primarily with non-psychiatric subjects (Gough, 1969). The CPI contains 480 items responded to as either true or false by the subject and reported in terms of 18 scores. Gough (1969) states that the names of the scales ". . . describe as closely as possible the kind of behavior they are designed to reflect."

The Self Acceptance scale, used in this study, is said ". . . to assess factors such as sense of personal worth, self acceptance, and capacity for independent thinking and action (Gough, 1969)." For purposes of this investigation the 36 items on the Self Acceptance scale

along with 26 items from other CPI scales were administered rather than the standard procedure of administering the entire test. The additional "filler" items were randomly assorted with the Self Acceptance scale items.

Some reliability and validity information about the Self Acceptance scale is provided in the CPI manual (Gough, 1969). A test-retest reliability coefficient of near +.70 is reported for high school students after one year and prisoners after one to three weeks.

Self acceptance ratings of subjects by others have indicated such ratings are positively related to self ratings on the Self Acceptance scale. A correlation coefficient of +.32 is reported between Self Acceptance scores of medical school applicants and university staff ratings of self acceptance for the applicants. The Self Acceptance scale was also found to significantly discriminate between students rated by school principals as most and least self acceptant.

Self Rating

A single sentence self rating with responses on a 5-point agree-disagree continuum was constructed for this study. It consisted of the following sentence: "Taking everything into consideration, I generally like the kind of person that I believe I am." This self rating scale was included in the study to assess the usefulness of asking individuals in a straightforward and brief manner, what their attitude was toward themselves.

Statistical Analyses

A number of separate analyses were computed for the test data.

Means and standard deviations for test scores of both groups were calculated and statistically compared by two-tailed t-tests. Scores for each group were separately intercorrelated to obtain Pearson Produce Moment correlation matrices. Correlation coefficients and differences between coefficients were tested by use of procedures described by Glass and Stanley (1970).

Test score variance-covariance matrices for both groups and a total group pooled correlation matrix were factor analyzed by the unrestricted maximum likelihood factor analysis (UMLFA) program described by Joreskog (1970, 1971). Factor patterns from the UMLFA analyses of the two groups and total group were further analyzed by the Orthogonal Procrustes computer program at the University of Illinois. This was then followed by computing coefficients of congruence (Harman, 1967) for the factors of the student and patient groups which had been rotated by the Orthogonal Procrustes program.

To obtain an alternate factor analysis solution and greater generality of results the correlation matrices for the separate groups and total group were analyzed by the Alpha Factor Analysis (Kaiser, 1966) computer program at the University of Illinois. The factor patterns derived by this program were rotated by the Oblique Procrustes computer program to an oblique factor solution. As was done with the maximum likelihood solution, coefficients of congruence were calculated for the factors between the student and patient groups.

Hypotheses

This study tested a number of hypotheses:

A. Null Hypotheses

1) There are no significant differences in the mean scores of the two groups of subjects on the eight self concept measures.

2) there are no significant positive relationships among the self concept measures for both groups of subjects.

B. Research Hypotheses

3) Two major factors, one a self acceptance or evaluative factor and the second a descriptive factor, account for most of the variance of the test scores for both groups. The evaluative factor would include the following scales: Self Satisfaction (TSCS), Self Acceptance (POI), Self Regard (POI), Self Acceptance (IAV), Self Acceptance (CPI) and Self Rating. The descriptive factor would include the Identity (TSCS) and Perceived Self (IAV) scales.

4) Similar factor patterns will be produced by the factor analyses of the test scores of both groups.

Summary

This study will investigate the construct validity of eight self concept scales by testing for group mean differences, correlation of scores, and factorial invariance for two groups of subjects.

IV. RESULTS

Mean Score Differences

The first hypothesis stated that there would be no significant differences in the mean scores of the test variables between groups. Table 1 contains the results of two-tailed t-tests for mean differences in test scores between groups. Mean scores of four scales, Self Acceptance (POI), Self Regard (POI), Self Acceptance (CPI), and Self Rating were significantly higher (viz., more positive) for the student group. Tests with no significant mean differences between groups were the two IAV scales, Perceived Self and Self Acceptance, and the TSCS scales, Identity[1] and Self Satisfaction. Hypothesis 1 was thus rejected for half of the eight test scores.

Intercorrelations

Table 2 presents the intercorrelations among test variables for students and patients. For the student group correlation coefficients ranged from +.12 to +.64, with 13 coefficients being significant at the .01 level and 9 additional ones being significant at the .05 level. Seventeen of the 28 correlation coefficients for the patient group in Table 2 were significantly different from zero; 15 at the .01 level and

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[1]An interesting finding was that the mean Identity score of the students was significantly lower ($p < .001$) than that reported by Fitts (1965) for his norm group. The patient mean Identity score was also significantly lower ($p < .001$) than the mean score for Fitts' norm group.

Table 1

t-Tests for Mean Differences in Test Scores of Students and Patients

	Students		Patients			
	Mean	SD	Mean	SD	t	Prob.
1. Self Acceptance (POI)	16.11	3.39	13.36	3.08	4.297	.001
2. Self Regard (POI)	11.63	2.22	9.97	2.82	3.487	.001
3. Self Acceptance (IAV)	177.36	20.50	173.31	28.26	.940	N.S.
4. Perceived Self (IAV)	180.86	21.11	178.28	31.04	.536	N.S.
5. Self Satisfaction (TSCS)	101.81	14.94	101.36	17.45	.147	N.S.
6. Identity (TSCS)	115.96	13.91	112.00	17.45	1.414	N.S.
7. Self Acceptance (CPI)	20.10	2.56	18.87	2.89	7.500	.001
8. Self Rating	4.02	.80	3.59	1.19	8.276	.001

Table 2

Correlation Coefficients Among Test Scores

(Students N = 83; Patients N = 39)

	1 Self Acceptance (POI)		2 Self Regard (POI)		3 Perceived Self (IAV)		4 Self Acceptance (IAV)		5 Self Satisfaction (TSCS)		6 Identity (TSCS)		7 Self Acceptance (CPI)		8 Self Rating	
	Students	Patients	Students	Patients	Students	Patients	Students	Patients	Students	Patients	Students	Patients	Students	Patients	Students	Patients
1.			.27*	.18	.12	.14	.22	.39**	.26*	.33*	.12	.20	.29**	.15	.16	.03
2.					.62**	.59**	.27*	.51**	.46**	.48**	.46**	.48**	.40**	-.01	.25*	.55**
3.							.51**	.64**	.61**	.62**	.64**	.64**	.31*	.11	.29*	.50**
4.									.43**	.52**	.40**	.59**	.14	-.07	.23*	.37*
5.											.57**	.65**	.19	.20	.24*	.53**
6.													.35**	.04	.37**	.65**
7.															.24*	-.11
8.																

*Significant at .05 level
**Significant at .01 level

2 more at the .05 level. Hypothesis 2 predicting no significant positive relationships between test measures for both groups was rejected for both groups.

The most outstanding contrast between the groups were the low and insignificant correlations between the Self Acceptance (CPI) score and the other scores for the patient group as compared to the five out of seven significantly positive correlations (3 at the .01 level) for the student group. However, the differences between the correlations were not significant.

Only one test intercorrelation was significantly different ($p < .05$) between groups. This was the correlation between the Self Acceptance scale of the CPI and the Self Regard (POI) scale. Whereas the student group obtained a +.40 ($p < .01$) between these two scores, the patient group had a -.01 (p = N.S.) correlation.

Factor Analyses

UMLFA

An initial maximum likelihood factor analysis followed by a varimax rotation was conducted on the pooled correlation matrix using Joreskog's (1967) UMLFA computer program and following equations presented by Joreskog (1970) for computing a pooled correlation matrix. This unrestricted maximum likelihood factor solution provided a means of testing for the number of common factors which appeared to best account for the combined correlation matrix by extracting successively zero through three common factors.

The Chi-square tests of goodness of fit provided by the UMLFA

program for each factor model were used to calculate an estimated reliability index developed by Tucker and Lewis (1970). This index provides a goodness of fit for each number of common factors and is unity when the model perfectly conforms to the data.

Table 3 shows the goodness of fit indices for the unrestricted maximum likelihood factor analysis of the pooled correlation matrix. On the basis of these analyses, a two factor solution appeared to best account for the variances of the eight tests.

The varimax rotated factor pattern for two common factors as calculated by the UMLFA program for the pooled correlation matrix is presented in Table 4. The Self Acceptance scales of the POI and CPI have small factor loadings on Factor II as compared to the other scales. Factor I is largely defined by the Self Acceptance (POI) scale, which has an extremely high loading on that factor accounting for almost all of the variance of that test. No other test loads significantly on this factor.

Finding only one major factor instead of two major factors accounting for test variance failed to confirm Hypothesis 3, hypothesizing two major factors corresponding to evaluative and descriptive components.

Six of the eight tests have moderate to high factor loadings on Factor II. These are Self Regard (POI), Perceived Self (IAV), Self Acceptance (IAV), Self Satisfaction (TSCS), Identity (TSCS), and Self Rating scales. The Self Acceptance (CPI) scale has a unique variance larger than any of the other tests. This along with the low factor

Table 3

Goodness of Fit of Various UMLFA Models of Pooled Correlation Matrix

Number of Common Factors	χ^2	df	Prob.	$\hat{p}$
0	315.72	28	0.0	----
1	34.37	20	0.02	.930
2	19.55	14	0.15	.961
3	11.57	9	0.24	.972

Table 4

Varimax Rotated UMLFA Solution for Pooled Correlation Matrix for a Two Factor Model

Tests	Common Factors		Unique Variances
	I	II	
1. Self Acceptance (POI)	.998	.063	.0
2. Self Regard (POI)	.191	.647	.54
3. Perceived Self (IAV)	.067	.858	.26
4. Self Acceptance (IAV)	.242	.601	.58
5. Self Satisfaction (TSCS)	.236	.701	.45
6. Identity (TSCS)	.098	.756	.42
7. Self Acceptance (CPI)	.233	.220	.90
8. Self Rating	.077	.512	.73

loadings on both factors appears to indicate that the Self Acceptance (CPI) scale is not measuring to a significant degree either of the two underlying factors or hypothetical contructs.

Factor II may be interpreted as a self concept component common to at least 6 of the 8 tests. An interpretation of Factor I is not as readily provided. It is worth noting that the two IAV scales, Self Acceptance and Perceived Self, and the TSCS scales, Self Satisfaction and Identity, which have some of the highest leadings of all the tests on Factor II, are also the four scales on which the students and patients did not have significantly different mean scores.

The Orthogonal Procrustes transformation of the Varimax rotated UMLFA solutions for two common factor for students and patients are in Table 5. These factor patterns were obtained by rotating the factor patterns of the initial UMLFA solutions to different orthogonal solutions by the Orthogonal Procrustes computer program. This transformation of the initial factor patterns was done in an effort to obtain more meaningful factor solutions without affecting the initial solutions by comparing the initial solutions for the separate groups to a similar set of axes. This rotation produced factor patterns for both groups of subject which best fit the maximum likelihood factor pattern for the pooled correlation data shown in Table 4. With the exception of the Self Acceptance (CPI) and Self Rating scales, the factor loadings on the factors for both groups are very similar.

The Self Acceptance (CPI) and Self Rating scales seem to be acting differently for the two groups. For the student group the Self Acceptance

Table 5

Orthogonal Procrustes Transformation of the Varimax Rotated UMLFA Solutions for Separate Groups

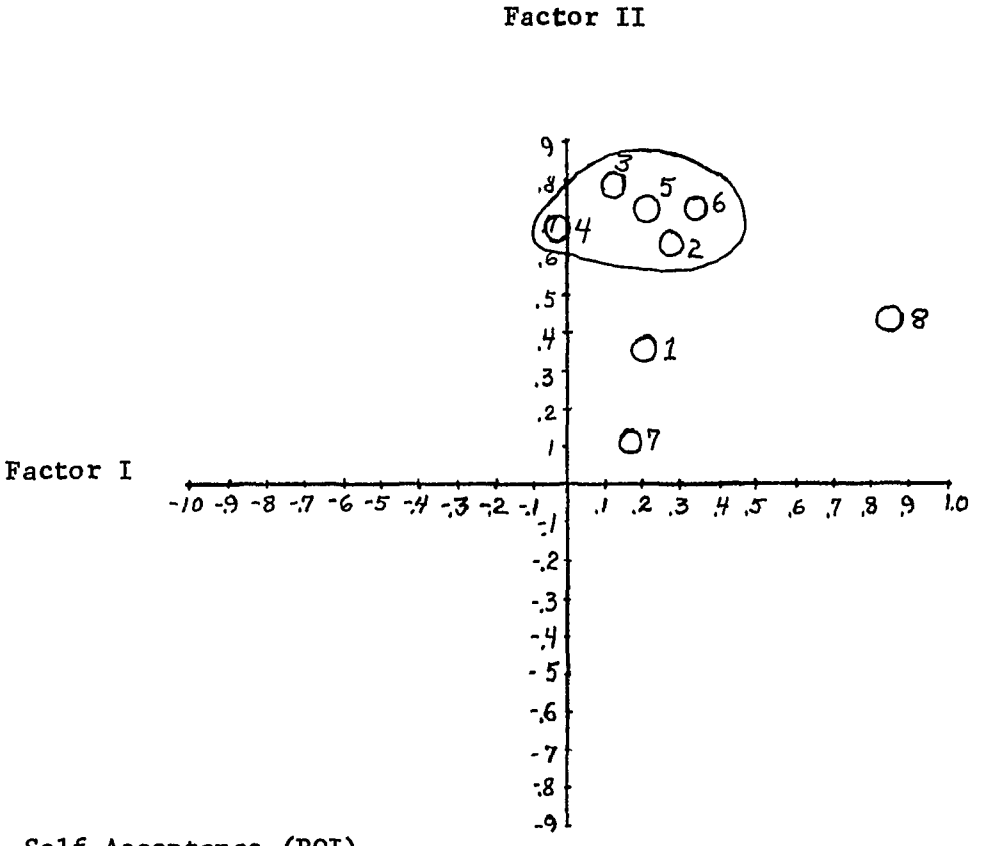
Tests	Factor I		Factor II		Unique Variance	
	Students	Patients	Students	Patients	Students	Pts.
1. Self Acceptance (POI)	.260	.171	.185	.373	.90	.83
2. Self Regard (POI)	.279	.276	.631	.624	.52	.53
3. Perceived Self (IAV)	.134	.124	.859	.803	.24	.34
4. Self Acceptance (IAV)	.027	.015	.565	.787	.68	.38
5. Self Satisfaction (TSCS)	.041	.191	.728	.741	.47	.41
6. Identity (TSCS)	.208	.323	.713	.743	.45	.37
7. Self Acceptance (CPI)	.978	.189	.207	.117	.0	.95
8. Self Rating	.167	.871	.348	.491	.85	.0

(CPI) scale has an extremely high loading on Factor I, accounting for most of the test variance. The loadings of the same scale for the patient group on Factors I and II are relatively small, indicating that little test variance is accounted for by either of the two factors. This difference between groups is exemplified by the zero unique variance for the student group and .95 unique variance for the patient group on the Self Acceptance (CPI) scale.

A similar but reversed situation occurs on the Self Rating scale. The .85 unique variance of the student group is contrasted by a zero unique variance for the patient group. Apparently two factors better account for the variance of the Self Rating scale for the patients than for the students.

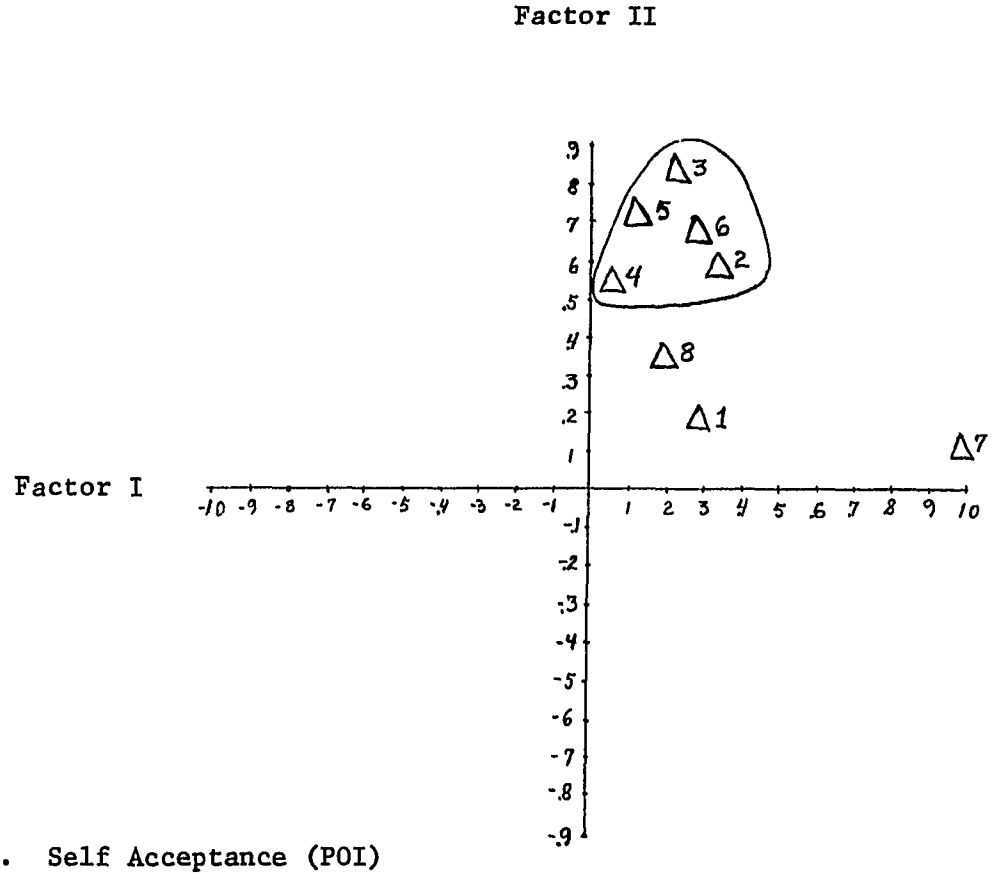
Both groups have low factor loadings and high unique variances on the Self Acceptance (POI) scale, suggesting that this test is not measuring concepts related to the other seven tests.

Figures 1 and 2 illustrate the graphic plottings of the pattern matrices in Table 5. Graphically representing factor loadings produces a configuration with each of the tests represented by a point. The density of the points or degree of proximity is a function of the intercorrelations of the tests (Harman, 1967). The clusterings of tests for both groups are similar. For both groups of subjects the scatter diagrams demonstrate that a number of tests tend to cluster together and exclude others. Five of the scales, Self Regard (POI), Perceived Self (IAV), Self Acceptance (IAV), Self Satisfaction (TSCS), and Identity (TSCS) form a somewhat similar cluster for both groups of subjects.



1. Self Acceptance (POI)
2. Self Regard (POI)
3. Perceived Self (IAV)
4. Self Acceptance (IAV)
5. Self Satisfaction (TSCS)
6. Identity (TSCS)
7. Self Acceptance (CPI)
8. Self Rating

Figure 1. Graphic representation of UMLFA solution for patient group rotated by orthogonal procrustes.



1. Self Acceptance (POI)
2. Self Regard (POI)
3. Perceived Self (IAV)
4. Self Acceptance (IAV)
5. Self Satisfaction (TSCS)
6. Identity (TSCS)
7. Self Acceptance (CPI)
8. Self Rating

Figure 2. Graphic representation of UMLFA solution for student group rotated by orthogonal procrustes.

For both groups the same three tests, Self Acceptance (POI), Self Acceptance (CPI), and Self Rating, are obviously not part of the test cluster containing the other five tests. The major difference in Figure 1 is in the relationships between these three tests for both groups. The Self Acceptance (CPI) scale for the patient group has a relationship with the Self Acceptance (POI) scale similar to that of the Self Rating and Self Acceptance (POI) scale for the student group.

Coefficients of congruence between the factors shown in Table 5 (viz., the varimax rotated maximum likelihood solutions for students and patients rotated by the Orthogonal Procrustes program) were calculated using an equation given by Harman (1967). Table 6 consists of the resultant coefficients. Coefficients of congruence provide indices for relating the degree of similarity or difference between two sets of factors. Although these coefficients are not correlations, they can be interpreted in a similar manner and range from +1 for perfect agreement and -1 for perfect disagreement. These coefficients are not, however, without interpretational weaknesses. Simulated data studies as yet unpublished have found that coefficients of congruence may be as high as .40 for a two factor model with ten variables due to chance factors alone (Korth, 1972).

The most outstanding coefficient of congruence is between Factor II for the two groups. The .98 coefficient indicates a relatively high congruence between Factor II for the groups and that this factor is to a large degree assessing a common underlying construct. The moderate coefficients between Factors I or each group and Factor II of the other

Table 6

Coefficients of Congruence for Orthogonal Procrustes Rotated UMLFA Solutions

Group	Students		
Patients		Factor I	Factor II
	Factor I	.08	.52
	Factor II	.40	.98

group are at or a little above chance occurence, and thus are not considered significant. Hypothesis 4 predicting similar factor patterns for students and patients is thus supported.

Alpha Factor Analysis

The Alpha Factor analysis of the groups of subjects and pooled correlation matrix for two factors is presented in Table 7. One major factor, Factor II, was extracted with the second factor, Factor I, contributing much less to test variance. The Self Acceptance (POI) scale has relatively low loadings on both Factors I and II for each group. A major difference between the student and patient groups on Factor II is the low loadings of the Self Acceptance (CPI) for patients on that factor compared to the moderate loadings on the same scale for the student group.

Some differences in factor loadings on Factor I for students and patients were found for the Perceived Self (IAV) and Self Rating scales.

Table 7

Alpha Factor Analysis Solutions for Two Orthogonal Factors for Separate Groups and Pooled (Total) Group

Tests	Factor I			Factor II			Unique Variance		
	Students	Patients	Total	Students	Patients	Total	Students	Patients	Total
1. Self Acceptance (POI)	-.29	-.34	.44	.37	-.33	.37	.78	.77	.68
2. Self Regard (POI)	-.08	.18	.01	.66	-.67	.68	.56	.51	.54
3. Perceived Self (IAV)	.39	.06	-.22	.81	-.78	.82	.19	.38	.28
4. Self Acceptance (IAV)	.14	.04	-.12	.52	-.75	.60	.70	.44	.63
5. Self Satisfaction (TSCS)	.20	-.24	-.03	.69	-.81	.74	.48	.28	.45
6. Identity (TSCS)	.23	.12	-.18	.74	-.79	.78	.29	.36	.36
7. Self Acceptance (CPI)	-.40	-.38	.32	.50	-.08	.30	.59	.85	.80
8. Self Rating	-.04	.45	-.18	.41	-.65	.50	.82	.36	.71

Perceived Self (IAV) has a slightly higher loading on Factor I for the students than patients. The moderate loading of the Self Rating scale on Factor I for the patient group is contrasted by a low loading for the student group.

The Alpha Factor analysis for two factors accounted for 50% of the test variance for students, 44% for patients, and 44% for the total group.

Table 8 contains an oblique factor rotation of the Alpha Factor Analysis solution presented in Table 7. The oblique rotation by the Oblique Procrustes computer program provides factors for the same group which may be intercorelated as opposed to an orthogonal solution which provides uncorrelated factors.

Table 8

Oblique Procrustes Transformation of Alpha Factor Analysis Solutions for Separate Groups

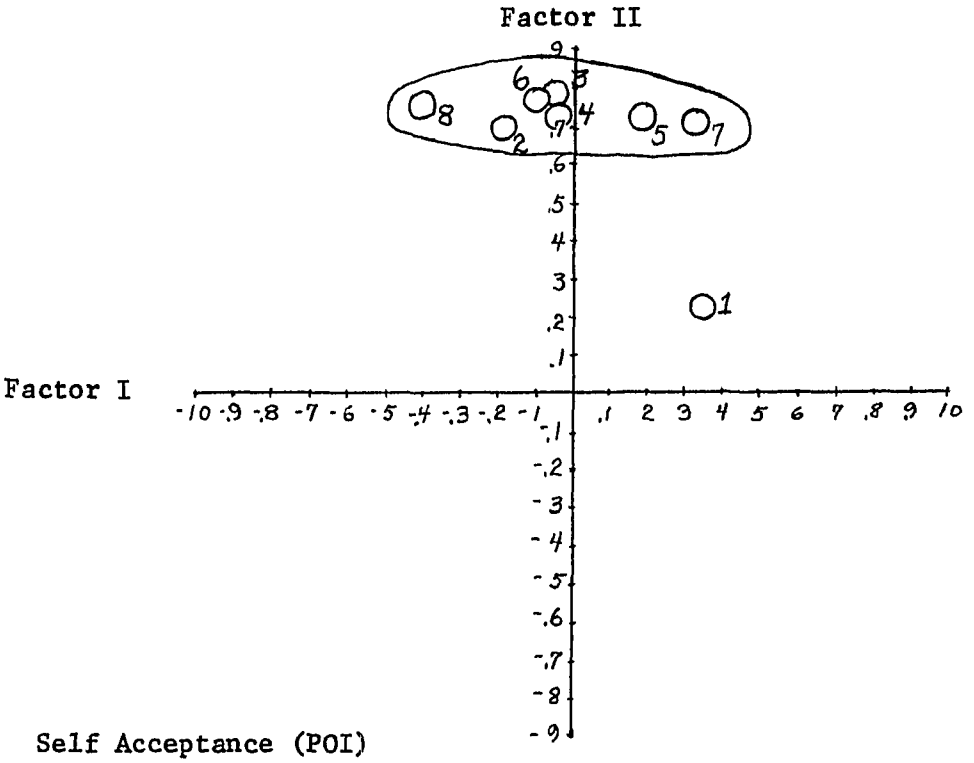
Tests	Factor I		Factor II	
	Students	Patients	Students	Patients
1. Self Acceptance (POI)	.312	.322	.301	.232
2. Self Regard (POI)	.112	-.213	.627	.697
3. Perceived Self (IAV)	-.345	-.102	.873	.771
4. Self Acceptance (IAV)	-.114	-.082	.547	.734
5. Self Satisfaction (TSCS)	-.167	.196	.718	.721
6. Identity (TSCS)	-.190	-.160	.775	.793
7. Self Acceptance (CPI)	.428	.335	.407	.690
8. Self Rating	.058	-.481	.397	.746

In most respects the oblique solutions for the two groups of subjects are similar to the orthogonal solutions found with the Alpha Factor Analysis program. One apparent difference is the change in the factor loading of Self Acceptance (CPI) for patients on Factor II. In the oblique solution the loading is much higher than in the orthogonal solution indicating that when uncorrelated factors are allowed, the Self Acceptance (CPI) test may assess the major factor (self concept) for patients. The other factor loadings are comparable.

Interpretation of the Oblique Procrustes transformation of the Alpha Factor Analysis solutions for the students and patients is aided by Figures 3 and 4 which are the graphic representations of the oblique factor loadings found in Table 8. For illustrative purposes perpendicular axes rather than oblique axes were used in graphically plotting the oblique solution factor loadings.

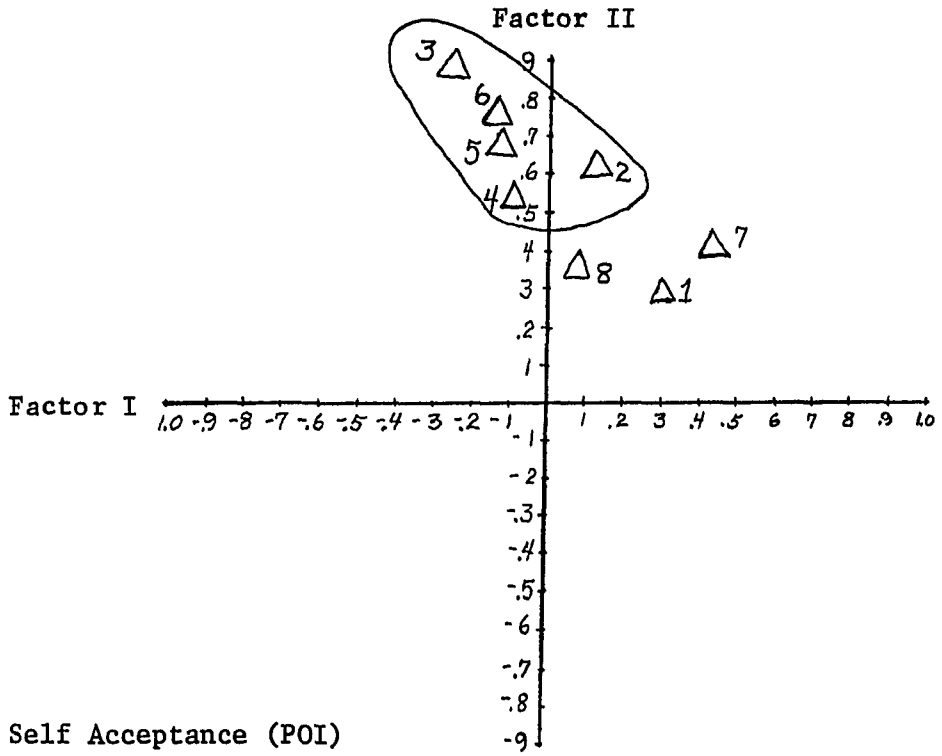
For the patient group the tests Self Regard (POI), Perceived Self (IAV), Self Acceptance (IAV), and Identity (TSCS) are clustered together indicating a close relationship among them. The grouping of the tests for the student group as shown in Figure 4 tends to be more spread out and not as interrelated as for the patient group. Although not in the same configuration for both groups, the Self Acceptance (POI), Self Acceptance (CPI), and Self Rating tests are on the fringes of the test clusters for each group. This finding is somewhat similar to that found by the UMFLA solutions rotated by the Orthogonal Procrustes and plotted in Figures 1 and 2.

The factors obtained by rotating to an oblique solution appear to be only slightly correlated or uncorrelated. The correlation between



1. Self Acceptance (POI)
2. Self Regard (POI)
3. Perceived Self (IAV)
4. Self Acceptance (IAV)
5. Self Satisfaction (TSCS)
6. Identity (TSCS)
7. Self Acceptance (CPI)
8. Self Rating

Figure 3. Graphic representation of Alpha Factor analysis solution for patient group rotated by oblique procrustes.



1. Self Acceptance (POI)
2. Self Regard (POI)
3. Perceived Self (IAV)
4. Self Acceptance (IAV)
5. Self Satisfaction (TSCS)
6. Identity (TSCS)
7. Self Acceptance (CPI)
8. Self Rating

Figure 4. Graphic representation of Alpha Factor analysis solution for student group rotated by oblique procrustes.

Factors I and II for the patient group is +.32. For the student group the intercorrelation of Factors I and II is +.16.

The coefficients of congruence between the oblique rotated factors are presented in Table 9. Factor II, the major factor for both groups of subjects, had a coefficient of +.97, indicating a high correspondence for Factor II for both groups. The coefficient of congruence between Factor I of both groups had a value of +.44, which is at or slightly above chance. Coefficients between Factors I and Factors II between groups are low and insignificant. This solution appears to result in one major factor accounting for test variance and which is highly congruent across patients and students.

Table 9

Coefficients of Congruence for Oblique Procrustes Rotated Alpha Factor Analysis Solutions

Group		Students	
		Factor I	Factor II
Patients	Factor I	.44	-.16
	Factor II	-.10	.97

Summary

The results of the UMLFA and Alpha Factor analyses and subsequent rotations do not support the acceptance of Hypothesis 3 that two major factors account for most of the variance of the test scores for both groups.

The coefficients of congruence indicate a high congruence between the major factors found by factor analyses between groups. This finding supports Hypothesis 4 which stated that similar factor patterns would be produced by the factor analyses of the test scores for both groups. Both groups appear to have a highly similar major factor (thought to probably represent a self concept construct) and a poorly interrelated minor second factor with an unclear interpretation.

V. DISCUSSION

The fact that students and patients were differentiated by only four of the eight tests raises some question about the validity of the instruments used in this study as well as self report self concept measures in general. It is commonly assumed that psychiatric patients differ from "normals" in terms of self acceptance or self concept. The more the maladjustment or psychiatric disturbance, the greater it is assumed the discrepancy will be between one's perceived self and ideal self or the more negative the self concept. Only half of the measures in this study suggest this is or may be the case.

The observed significant mean score differences should not, however, be assumed to necessarily demonstrate more positive self concepts for the student group. The groups were different on such variables as age, education and social class. The results of the factor analyses indicate that for three of the four tests on which the groups scored significantly different (Self Acceptance (POI), Self Acceptance (CPI), Self Rating), a self concept construct may not be the major underlying factor accounting for test difference. Examination of the factor loading scatter diagrams finds Self Acceptance (CPI), Self Acceptance (POI) and the Self Rating scales usually separated from the rest of the tests that have moderate to high loadings on the major factor. This appears to indicate that the three tests in question are not closely related to the other tests with higher major factor loadings. The oblique transformed Alpha Factor

analysis solution suggests, however, that when a correlated factor solution is allowed, for the patient group, the Self Acceptance (CPI) and Self Rating are closely interrelated with the other tests except for Self Acceptance (POI). These relationships are contrasted by the low and nonsignificant correlations between the Self Acceptance (CPI) and other tests (except for Self Rating) in the patient group. Perhaps the factor patterns indicating low factor loadings for the Self Acceptance (CPI) scale on the major factor better represent its relationship to that factor.

The Self Regard (POI) scale is the only measure with a high factor loading on the major factor for both groups of subjects for which the groups obtained significantly different mean scores. If the major factor reflects a self concept construct, the groups actually differed on one test in terms of self concept. It is not clear what factors account for the significant differences of the other three. Although they have some face validity for use as self concept measures they appear to poorly assess that construct.

An even more important finding was the lack of significant mean score differences between the groups on the Self Acceptance (IAV), Perceived Self (IAV), Identity (TSCS), and Self Satisfaction (TSCS) scales. These four tests have moderate or high loadings on the major factor for both groups. If this factor indeed assesses an underlying hypothetical self concept construct, it would be reasonable to expect groups assumed to differ on that construct to score significantly different on tests measuring that construct. In this instance at least no significant differences occurred.

These results are difficult to explain if one assumes that self report measures provide valid means of inferring the phenomenlogical existence of the self concept. Because of the many inherent measurement problems of self reports, some researchers have rejected their use to assess the self concept (Combs, 1962; Combs and Snygg, 1959; Combs, Soper & Courson, 1963). Such critics recommend more valid measures such as observable behavior. The self concept measures of the patient group may not be valid indications of their self concept.

One possible explanation for the lack of mean score differences on four of the eight tests in this study is that the scores of the patients are not valid because of a social desirability response set. Studies investigating the relationship of self ratings and social desirability of the same self ratings indicate a close positive relationship. Cowen and Tongas (1959) for instance reported a correlation of +.91 between social desirability and the IAV Perceived Self score for male and female college students. In a similar comparison Crowne, Stephens and Kelly (1961) found correlations between Perceived Self (IAV) and social desirability to be positive and in the mid thirties. Kenny (1956) found a +.81 correlation between social desirability ratings and a "real self" rating based upon an adjective check list. Winkler and Meyer (1963) found that 64% of the variance on the IAV Self-Ideal score was accounted for by anxiety and response set measures as assessed by the Taylor Manifest Anxiety Scale, the Couch-Kenniston Yeasay-Naysay Scale, the Marlowe-Crowne Social Desirability Scale and the Bass Social Acquiescence Scale.

For the IAV there appears to be a close correspondence between endorsement of test items and the social desirability of those items. Less is known regarding the relationship between TSCS items and social desirability. Perhaps the TSCS is also susceptible to such a response set. Greenburg and Frank (1965) criticize the TSCS for items on subscales being presented together and thus leading to a possible response set. The items for the Identity and Self Satisfaction scales are presented in this manner and are thus susceptible to a response set. Thompson (1972) in summarizing a number of studies relating anxiety measures and TSCS scores, reports negative correlations ($p \leq .05$) ranging from -.39 to -.67 between various paper and pencil anxiety indices and the Identity and Self Satisfaction scores. It should also be recognized that the student group and patient group were both significantly lower on the Identity (TSCS) scale than Fitt's (1965) norm group. Examination of the mean of the TSCS Self Criticism score, which Fitts (1965) regards as "an obvious defensiveness score," did not lend support to a hypothesis that the patient group was being defensive.

Non significant different self-concept measures between normal and patient groups have been previously reported. Ibelle (1961) and Hillson and Worchel (1957) have reported no significant differences in the self concept measures of schizophrenic hospitalized patients and college students. Ibelle (1961) found no significant differences between the self-ideal correlations of the two groups. Hillson and Worchel (1957) reported no significant differences on self scores for the same types of subjects.

Manasse (1965) found hospitalized chronic schizophrenics had significant higher self-ideal correlations than the same type of patients who were treated at a day care center. His interpretation of this finding was that the situational variables accounted for the observed self concept differences. The hospital environment placed fewer demands and expectations upon the hospitalized patients and allowed them to create illusions of doing well whereas the day care center patients were more likely to be confronted with their personality inadequacies.

In the context of this study there may be some relevance to the issue of social settings as affecting self ratings. Perhaps the psychiatric patients in this study actually view themselves positively in some respects when considering their hospital environment. The other possibility is that the patients were responding to what they perceived as being socially desirable or were denying many of the negative aspects of themselves. In any case and for whatever reason, the lack of score differences on the IAV and TSCS scales for patients and students do not generally conform to previous reported results. As Zuckerman and Monashkin (1957) suggest, perhaps self concept measures "...might conceivably bear more of a relationship to actual adjustment in outpatients who come in voluntarily to receive psychotherapy." The sole use of scores such as those of the IAV and TSCS as inferences to self concept may not be valid indications of the psychological well being of some individuals. An alternative to the use of self reports would be to also obtain information about actual behavior as suggested by Combs,

Soper, and Courson (1963). Also, individual responses to self report items may be more useful than total scores in understanding a person's self concept.

The factor analyses of the tests of the separate groups of subjects and subsequent comparison of solutions found a single major factor accounting for the variance of most of the tests. This major factor was also found to be highly congruent across groups. Since the tests in terms of construction and face validity appear to assess self concept (both perceived and evaluative components) it is probably reasonable to interpret the major factor as a self concept construct, composed of both evaluative and descriptive components. The factor loadings for each test indicate to what extent each measures that construct.

The lack of significant mean score differences on the IAV and TSCS scales between the patient and student groups complicates interpretation of a self concept construct. Apparently behaviorally inferred and self reported self concepts may be incongruent. Self reported self concept measures such as the tests in this study may be considered to measure self referent aspects of a person's phenomenal field, what he says about himself. This phenomenalogical field is affected by many different external variables perceived by the reporting individual.

This study does not prove or disprove the validity of self report measures as means of assessing an individual's self concept, since there is no way of independently checking an individual's self report to learn whether or not he is accurately reporting his self perceptions.

A conservative interpretation of the self concept factor in this study is that it represents both descriptive and evaluative aspects by

by which an individual characterizes himself. A distinction between descriptive and evaluative components was not supported since only one major factor was found by the factor analyses. The failure to find two major factors corresponding to descriptive and evaluative factors of the self concept, suggests that an individual does not describe or perceive characteristics he attributes to himself without evaluating those descriptions. It therefore does not appear to be useful to assume that self concept scales based on this distinction, such as the TSCS Identity and Self Satisfaction scales, represent two different and distinctive aspects of the self concept. Evaluative and descriptive components are not that independent to justify such interpretations.

The effects of such variables as social desirability, denying, impression management, and demand characteristics upon how an individual responds to self concept test items are not accounted for and the extent of their effects is not known. Perhaps much of the unaccounted for test variance is due to such factors as well as specific test format. Self concept measures based on self reports should not be interpreted directly as indices of adjustment. There does not seem to be a consistent positive relationship between adjustment and positive self concept ratings for all subjects.

In order to minimize the occurence of false negatives (self report scores interpreted as representing positive self concepts but which are inconsistent with observed behavior) self report measures should be compared with the behavior of the same individuals. If as Rogers (1951) has repeatedly professed, an individual's behavior is consistent with

his self perceptions, behavioral observations may be more valid indices of self concept since they may have fewer methodological problems than self reports.

The second and minor factor of the factor analyses was not found to be very congruent across groups, indicating differences in what it was assessing for the groups of subjects. Depending upon which group is considered, the minor factor is defined differently. The UMLFA (Orthogonal Procustes Transformation) solutions most clearly defined this factor for the two groups of subjects. For the patient group the Self Rating scale defines the factor. For the student group the Self Acceptance (CPI) defines the factor. In the initial pooled correlation UMLFA, the Self Acceptance (POI) scale defined the minor factor for the groups combined. These results are somewhat confusing and hinder a clear interpretation of this factor. One explanation is that this finding was an artifact of the UMLFA program. The relatively low inter-correlations of the Self Acceptance (CPI) with the other tests support such an explanation.

The Oblique Procrusteses Transformation of the Alpha Factor Analysis (Table 8) perhaps provides a more meaningful solution for both the minor and major factors. The minor factors between the two groups appear to be perhaps somewhat congruent. The Self Acceptance (CPI) scale seems to have similar loadings for both groups on the minor factor. The Self Rating scale defines to a large degree the minor factor for the patient group but not for the student group.

The transformed orthogonal UMLFA and transformed oblique Alpha factor solutions for the groups of subjects are very similar. An

apparent difference is seen when the graphic representations are compared in Figures 1 and 3. For the oblique solution of the patient group, the Self Acceptance (CPI) and Self Rating are closer (more interrelated [Figure 1]) to the main cluster of tests than in the orthogonal solution (Figure 3). For both groups of subjects, the minor factors (Factor I) in the oblique solutions are less well defined as compared to the minor factors found in the orthogonal UMLFA solutions. The minor factor is more clearly defined for each group in the Orthogonal UMLFA solution (compare Tables 5 and 8); by the Self Acceptance (CPI) for the students, and Self Rating for the patients.

In comparing the Orthogonal and Oblique Procrustes transformations, the oblique transformation appears to better describe the test score intercorrelations, with the exception of the Self Acceptance (CPI) scale. The oblique solution of the Alpha Factor analyses produced factors which were "cleaner" than factors produced by the orthogonal transformed solution of the UMLFA. For the oblique transformed solution the minor factor is better matched for both groups and the off diagonal coefficients are smaller than those in the UMLFA Orthogonal Procrustes solution. (Compare Tables 6 and 9.) This indicates that Factor I of one group and Factor II of the other group are less interrelated between the groups of subjects in the oblique transformed solution.

The oblique transformed factor solution (Table 8) for the patient group has higher factor loadings for Self Acceptance (CPI) on Factor I than the orthogonal transformed factor solution (Table 5). The low intercorrelations of the Self Acceptance (CPI) with other tests (as

illustrated in Table 2) indicate, however, that the orthogonal solution may better represent the relationship of this scale with the major, self concept, factor.

The factor analyses of the test scores for two groups of subjects theoretically differing in terms of self concepts found that the factor patterns produced were congruent for a major factor and dissimilar or poorly related for a minor factor. This finding supports the construct validity of most of the self concept scales administered in this study in that the eight tests generally measure a congruent underlying factor for both groups. The tests utilized were found to be generally positively intercorrelated for both groups of subjects. However, two tests differed from the rest of the tests--Self Acceptance (POI) and Self Acceptance (CPI)--in not being so highly intercorrelated as the other 6 tests. Students and patients scored significantly different on but one scale, the Self Regard (POI), on which both groups had moderate to high factor loadings on the major or self concept factor. This raises the issue of just how valid self reports are as measures of self concept and how they are related to adjustment criteria.

VI. SUMMARY AND CONCLUSIONS

Few construct validity studies of self concept tests have been conducted. None have attempted to test for factorial invariance between groups which theoretically should score differently on such measures. This investigation attempted to test the construct validity of eight self concept (self report) measures by investigating mean score differences, test intercorrelations and factor patterns for a group of male college students (N=83) and hospitalized male psychiatric patients (N=39).

Each group completed a battery of tests that included two scales from the Index of Adjustment and Values (IAV), Self Acceptance and Perceived Self; two from the Personal Orientation Inventory (POI), Self Acceptance and Self Regard; two from the Tennessee Self Concept Scale (TSCS), Self Satisfaction and Self Identity; the Self Acceptance scale from the California Personality Inventory and a single sentence Self Rating scale constructed for the study. The tests were scored and analyzed separately to obtain means, standard deviations, and intercorrelations. Significantly higher mean scores were obtained by the student group on the Self Acceptance (POI), Self Regard (POI), Self Acceptance (CPI), and Self Rating scales. Positive intercorrelations among the tests for both groups indicate positive relationships among most of the tests. Two tests intercorrelated less well with the other six tests. These were the Self Acceptance (POI) and Self Acceptance (CPI) scales.

A two factor model was found to best account for the variance of the eight tests. In general the factor patterns produced by different factor analyses (UMFLA and Alpha) appeared similar across groups with some exceptions. Coefficients of congruence between the same factors for students and patients were high for the major factor, interpreted as a self concept construct and low for the minor second factor.

Self concept scales with the same or different labels (e.g. self acceptance, self regard and self satisfaction) may or may not be validly interpreted as measuring the same variable or construct. Measures with face validity do not necessarily assess a self concept factor. Self concept scores appear to be susceptible to a number of variables which may contribute to how individuals respond to test items. Adjustment may not be related in a one to one relationship with self report self concept measures.

The factor analyses of self concept test scores substantiated that a common construct (i.e. self concept) was assessed to much the same extent for both groups of subjects by the tests administered. The results of this study provide empirical support that much of what is being measured by self concept tests is similar for both groups. It is not clear, however, just exactly what is being measured because of the possible effects of such variables as social desirability. More studies investigating what these other variables are and their effects upon self reports are needed to clarify this issue. The present study indicates much test variance is not accounted for solely by a self concept factor.

Until more specific interpretations can be empirically supported, the self concept factor should be regarded as reflecting those aspects which an individual attributes to himself and his evaluation of them for whatever reason.

Some self concept scales measure a self concept factor to a greater degree than others. The factor analyses for the two groups of subjects found that two scales, Self Acceptance (CPI) and the Self Rating were not measuring the same things for both groups. This suggests that self concept tests may not be appropriate or valid for all types of subjects.

Factor analytic studies of the item responses rather than total self concept test scores should be conducted. The factors produced from such analyses could provide more homogenous and more easily interpretable scores. Different self concept tests may be assessing different self concept aspects to various degrees. The study of the internal structure of self concept tests may reveal the relationships of various aspects of the self concept. One of the few instruments attempting to assess these different aspects or subselves of the self concept is the TSCS. The factor patterns from the analyses could be tested for invariance across groups.

The questionable validity of self report measures of self concept indicate a need for alternative methods of assessment. The behavioral approach described by Combs, Soper & Courson (1963) in which self concept is inferred from observed behavior is the most obvious alternative. Future research should be devoted to the development of systemmatic and reliable methods to assess self concept by behavioral means rather

than depending solely upon introspective self reports. There is a need for standardization of such behavior rating methods and to have high inter rater reliability regarding the inferred self concept.

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VITA

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His early interests in archaeology and anthropology were pursued at Louisiana State University, Baton Rouge, where he obtained a B.A. degree in anthropology in the spring of 1968. An article titled "Fort Baton Rouge" published in 1969 resulted from research done as a student at L.S.U.

Shortly after graduating from college, he married Sharon Martina Hilding and moved to Illinois. For a year he was employed as a mental health worker at a state residential treatment facility for emotionally disturbed children. This work cultivated a desire to train for a career in a helping profession and lead to enrollment in the Educational Psychology Department at the University of Illinois, Urbana-Champaign in the fall of 1969.

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